APPENDIX H. CITY PROGRAMS ANALYSIS MATRICES

Habitat Elements

I. Instream conditions

A. Flow

1. Periodicity
   a. Storms—addition of water
   b. Groundwater recharge—subtraction of water

2. Erosion
   a. Normal for undisturbed stream
   b. Condition for disturbed stream

B. Sediment (addition of fines)

1. autochthonous

2. allochthonous

II. Riparian

A. Buffer size (width and height)

B. Buffer composition

C. Buffer continuity

III. Water Quality (Contaminants)

A. Point source

1. Industrial
2. Commercial
3. Residential
4. Municipal (wastewater)

B. Non-point source

1. Agriculture
   a. Fertilizer
   b. Pesticide
   c. Herbicide

1. Horticulture (lawns and gardens)

2. City activities (traffic, etc.)

3. Stormwater injection

IV. Instream Habitat Conditions

A. Pool-Riffle Habitats

1. pool quality
2. pool quantity
3. Width-to-depth ratio

B. Substrate

1. Type
2. Embeddedness/percentage fines

C. Cover

1. Instream
2. Large Woody Debris (LWD)

D. Shade

E. Temperature

F. Water quality

G. Off-channel habitat/refugia

V. Watershed Elements

A. Impervious surface

1. Present
   a. Municipal
   b. Residential
   c. Commercial
   d. Industrial
   e. Transportation

2. Proposed/projected
   a. Municipal

b. Residential
c. Commercial
d. Industrial
e. Transportation

3. Physical barriers

4. Floodplain connectivity

5. Riparian continuity

Impacts

I. Instream habitat conditions

RIPARIAN AREAS

Properly functioning condition consists of buffer widths, continuity, and structure sufficient to provide streambank erosion protection, LWD, filtration of overland flow, and shading. Densely vegetated riparian areas act as filters for contaminants and nutrients, as well as infiltration areas to regulate flows. Riparian areas also provide LWD, an important contributor to instream habitat structure and formation and shade for the adjacent stream. Riparian areas also prevent bank failure and create instream bank cover for fish.

Riparian Condition (decreased buffer width tends to act like impervious surface)

1. Increased instream erosion loss of habitat structure and diversity
2. Increased Horton (overland) flow of water and pollutants
3. Higher temperature (loss of shade)
4. Loss of LWD which leads to loss of instream structure

Riparian condition pathways

1. Insufficient buffer size or structure diminishes the functions of infiltration and filtration. If the riparian zone consists of lawns or manicured grasses, it can act as a more impervious surface.
2. The presence of LWD is diminished by lowered riparian connectivity, as is the structure of the riparian zone. A zone with no large trees will contribute no LWD to the stream channel
3. Riparian areas with shrubs or young trees provide less of a shade function to a stream. Grasses shade even less and manicured grasses provide no shade function.
4. Any vegetation on the bank will provide protection against erosion, although quality varies.

Corvallis Habitat Assessment and Pathways Analysis Synthesis

I. Habitat Assessment

- A. Statement of purpose
- B. Basins assessed General Descriptions/Historical Analysis
  1. Willamette River
  2. Mary's River
  3. Oak Creek
  4. Squaw Creek
  5. Dixon Creek
  6. Sequoia Creek
- C. Baseline Habitat Assessments of above stream basins
- D. Other elements
  1. Temperature
  2. Contaminants
  3. Flow

II. Pathways Analysis

- A. Description of need
- B. Ecological processes
- C. Identification and description of pathways

III. Analysis of Regulatory Impacts

- A. Short description of process
- B. Appendix

IV. Analysis of Infrastructure Impacts

A. Short description of process

B. Appendix